Japan is facing upcoming unprecedented population problems as the proportion of elderly persons increases year by year. Fortunately, survival with favorable neurological outcome in elderly individuals with out-of-hospital cardiac arrest (OHCA) has been improving in Japan, as well as in the pediatric generation, especially at school. Survival from OHCA is mainly dependent on whether it is witnessed or un witnessed, initial shockable rhythm or not, and bystander CPR performed or not. These findings have been mainly obtained from endogenous cardiac arrest data. In this issue of the Journal, Kiyohara and colleagues focus on accidental OHCA during bathing in Japan and report exceedingly poor outcomes; only one neurologically good survival out of 642 bath-related cardiac arrests during 3 years from 2012 to 2014.

According to analysis of the causes of death by the Ministry of Health, Labor and Welfare, Japan, there were 45,323 accidental deaths of all ages during 1995, which decreased to 39,029 during 2014 (Figure). This decrease in accidental deaths was mainly a reduction in vehicle-related deaths (15,147 in 1995 to 5,717 in 2014). On the other hand, deaths associated with bathing increased from 3,190 in 1995 to 5,362 in 2014 (68%), and foreign body airway occlusion (FABO) increased from 7,104 to 9,806 (38%). These increased numbers of deaths were mainly in the elderly population (Figure). For elderly people, death from disease might be a natural course, but accidental death can be avoided. To avoid and prevent accidental deaths, we have to know the detailed characteristics of both the accidents and the deaths.

Kiyohara et al describe a seasonal dependency among the characteristics of bath-related OHCA, which occurred mainly in winter, and more than 90% of the OHCA patients who died in home baths had good activity in daily life (ADL) before the arrest. Hori reported the same finding that deaths in bathtubs occurred mainly in winter in Yamagata, Tokyo and Saga. Bath-related accidents, which included rescue from the bathtub, and acute illness or trauma in the bathroom, but did not include bath-related cardiac arrest, also occurred mainly in winter. Because of the same seasonal distribution of deaths in bathtubs and rescue from bathtubs, and of the longer bathing
time in the dead group, Hori suggested that victims somehow became immobile in the bathtub followed by immersion.\textsuperscript{5} Suzuki and colleagues reported that drowning played an important role in the final process of bath-related deaths in 550 autopsy cases.\textsuperscript{6} Why do apparently healthy people who can take a bath alone end up drowning? According to Utstein-style data collection, more than 70\% of bath-related OHCA are classified as presumed cardiac origin, and drowning is less than 25\%.\textsuperscript{3} There would be some limitation to estimating the real origin of death in the Utstein style database as the current authors describe.\textsuperscript{3} We need to seek the reason why some elderly people with good ADL are becoming immobile or unconscious in the bathtub. Fever is reported to be associated with triggering fetal arrhythmia in both long QT syndrome and Brugada syndrome,\textsuperscript{7} but very few victims presented with shockable arrest rhythm.\textsuperscript{3} Four possible explanations are presented: (1) heat stroke in the bath leads to unconsciousness; (2) sudden decrease in blood pressure immediately after standing up in the bathtub leads to a description of syncope; (3) seated position in the bathtub and hot water induce vasodilation that leads to neurally mediated syncope; and (4) some type of arrhythmia.\textsuperscript{8} The seasonal distribution in both bath-related cardiac arrest and accidents could be explained by the weather, as elderly people are more sensitive to severe weather conditions.\textsuperscript{9}

Bath-related OHCA can occur even in elderly persons with good ADL (in other words, healthy) in winter. Once the victim has a cardiac arrest in the bathtub, the prognosis is extremely poor. The number of deaths by drowning or immersion in a bathtub is already more than that from traffic accidents in Japan. We have to publicize the 5 statements of prevention described in the 2015 Japanese guideline.\textsuperscript{10} We also need to focus on FBAO-related cardiac arrest now.

\textbf{References}